

### **REMARKS**

In response to the Advisory Action dated September 13, 2007, claims 1, 18, 25, and 31 have been amended. Therefore, claims 1-10, 13-23, 25-27, 29, and 31-34 remain in the case. In light of the amendments and arguments set forth herein, reexamination and reconsideration of the application are requested.

It should be noted that the Advisory Action dated September 13, 2007, entered the amendments of the paper filed on August 18, 2007. However, even after entering of the amendments the examiner maintained his rejection of all the claims as set forth in the final Office Action dated June 18, 2007. Therefore, this paper will respond to the rejections set forth in that final Office Action in light of the current claim amendments.

#### **Section 103(a) Rejections**

The final Office Action rejected claims 1-23 and 25-34 under 35 U.S.C. § 103(a) as being unpatentable over a paper by Michael H. Bianchi entitled "A Fully Automatic Multi-Camera System to Televisе Auditorium Presentations" in view of a paper by Li-wei He et al. entitled "The Virtual Cinematographer: A Paradigm for Automatic Real-Time Camera Control and Directing". More specifically, the Office Action maintained that the combination of Bianchi and He et al. discloses each and every feature of the Applicants' invention, either explicitly or implicitly.

In response, the Applicants respectfully traverse these rejections. In general, the Applicants submit that the combination of Bianchi and He et al. is lacking certain material features set forth in the Applicants' claims. More specifically, the combination does not disclose, either explicitly or implicitly, the material claimed features of:

1. For amended independent claim 1: "a set of expert video production rules that are probabilistic rules used by human video professionals in a video production field, the expert video production rules being weighted such that a first rule of the expert video production rules has greater weight as compared to a second rule of the expert video production rules, so that if the

first rule and the second rule conflict the first rule is used and the second rule is discarded since the first rule has a greater weight than the second rule;"

2. For amended independent claim 18: "weighting the expert video production rules such that a first rule of the expert video production rules has greater weight as compared to a second rule of the expert video production rules, so that if the first rule and the second rule conflict the first rule is used and the second rule is discarded since the first rule has a greater weight than the second rule;" and, "receiving as input audio and video tracking results and using the set of expert video production rules and a finite state machine to automatically determine a current camera view from the multiple camera views."
3. For amended independent claim 31: "a virtual director module using a probabilistic finite state machine and receiving as input audio and video tracking results from the audience-tracking camera and the lecturer-tracking camera and using the set of expert video production rules and probabilistic rules to automatically select a current camera view from the multiple camera views in a real-world environment such that the current camera view is a weighted random choice."

Further, Bianchi and He et al. fail to appreciate the advantages of these material features recited in claims 1, 18, and 31. In addition, there is no technical suggestion or motivation disclosed in either Bianchi or He et al. to define these claimed features. Thus, the Applicants submit that the combination of Bianchi and He et al. cannot make obvious the Applicants' claimed features listed above.

To make a prima facie showing of obviousness, all of the claimed features of an Applicant's invention must be considered, especially when they are missing from the prior art. If a claimed feature is not disclosed in the prior art and has advantages not appreciated by the prior art, then no prima facie showing of obviousness has been made.

The Federal Circuit Court has held that it was an error not to distinguish claims over a combination of prior art references where a material limitation in the claimed system and its purpose was not taught therein. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Moreover, as stated in the MPEP, if a prior art reference does not disclose, suggest or provide any motivation for at least one claimed feature of an Applicants' invention, then a prima facie case of obviousness has not been established (MPEP § 2142).

#### Amended Independent Claim 1

Amended independent claim 1 of the Applicants' claimed invention includes an automated video production system for online publishing of a lecture. The system includes a camera system that provides multiple camera views of the lecture in a real-world lecture environment, wherein the camera system includes a lecturer-tracking camera that provides a camera view of a lecturer, and a history-based, reduced-motion tracker that controls the lecturer-tracking camera in tracking the lecturer based on a history of the lecturer's movement. The system further includes a set of expert video production rules that are probabilistic rules used by human video professionals in a video production field, the expert video production rules being weighted such that a first rule of the expert video production rules has greater weight as compared to a second rule of the expert video production rules, so that if the first rule and the second rule conflict the first rule is used and the second rule is discarded since the first rule has a greater weight than the second rule. Moreover, the system includes a virtual director that uses the set of expert video production rules to select a current camera view from the multiple camera views and is capable of changing the current camera view by switching between the multiple camera views in response to a triggering event.

As recited in amended claim 1, the expert video production rules are weighted. In particular, "a rule may be considered to have more weight if the rule was obtained from a video professional who has a great deal of experience or if the rule was obtained from a classic textbook on video production" (specification, paragraph [0088], lines 7-9). Moreover, "[I]f certain rules conflict they either can be excluded or the rules having the

most weight can be included” (specification, paragraph [0088], lines 6-7).

In contrast, the combination of Bianchi and He et al. does not disclose a set of weighted expert video production rules whereby if a first rule and a second rule conflict the first rule is used and the second rule is discarded since the first rule has a greater weight than the second rule. Consequently, no motivation or suggestion for the claimed feature of the Applicants’ invention is provided. Absent this teaching, motivation or suggestion, the combination of Bianchi and He et al. cannot render the Applicants’ claimed invention obvious (MPEP § 2143.01).

The combination fails to appreciate or recognize the advantages of the feature recited in amended claim 1 of a set of expert video production rules that are probabilistic rules used by human video professionals in a video production field, the expert video production rules being weighted such that a first rule of the expert video production rules has greater weight as compared to a second rule of the expert video production rules, so that if the first rule and the second rule conflict the first rule is used and the second rule is discarded since the first rule has a greater weight than the second rule. More specifically, weighting of the expert video production rules ensures that if rules conflict then procedures are in place to resolve the conflict. Neither Bianchi nor He et al. discuss or appreciate these advantages of the Applicants’ claimed feature.

The Applicants, therefore, submit that obviousness cannot be established since the combination of Bianchi and He et al. fails to teach, disclose, suggest or provide any motivation for the material feature recited in Applicants’ amended claim 1 of a set of expert video production rules that are probabilistic rules used by human video professionals in a video production field, the expert video production rules being weighted such that a first rule of the expert video production rules has greater weight as compared to a second rule of the expert video production rules, so that if the first rule and the second rule conflict the first rule is used and the second rule is discarded since the first rule has a greater weight than the second rule. In addition to explicitly lacking this feature, the combination of Bianchi and He et al. also fails to implicitly disclose, suggest, or provide explicit or implicit

motivation for this feature. Further, the combination of Bianchi and He et al. fails to appreciate advantages of this claimed feature.

Therefore, as set forth in *In re Fine* and MPEP § 2142, the combination of Bianchi and He et al. does not render the Applicants' claimed invention obvious because the references are missing at least one material feature recited in the Applicants' amended claim 1. Consequently, because a prima facie case of obviousness cannot be established due to the lack of "some teaching, suggestion, or incentive supporting the combination", the rejection must be withdrawn. ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984); MPEP 2143.01.

Accordingly, the Applicants respectfully submit that amended independent claim 1 is patentable under 35 U.S.C. § 103(a) over Bianchi in view of He et al. based on the amendments to claim 1 and the legal and technical arguments set forth above and below. Moreover, claims 2-10, and 13-17 depend from amended independent claim 1, and are also nonobvious over Bianchi in view of He et al. (MPEP § 2143.03). The Applicants, therefore, respectfully request reexamination, reconsideration and withdrawal of the rejection of claims 1-10 and 13-17.

#### Amended Independent Claim 31

Amended independent claim 31 recites an automated video production system for capturing images of a real-world scene. The system includes an audience-tracking camera that provides images of an audience within the real-world scene, a lecturer-tracking camera that non-intrusively tracks a lecturer within the real-world scene, and a history-based, reduced-motion tracker that controls the lecturer-tracking camera in tracking the lecturer based on a history of the lecturer's movement. The system further includes a set of expert video production rules containing video production constraints, and a virtual director module using a probabilistic finite state machine and receiving as input audio and video tracking results from the audience-tracking camera and the lecturer-tracking camera and using the set of expert video production rules and

probabilistic rules to automatically select a current camera view from the multiple camera views in a real-world environment such that the current camera view is a weighted random choice.

As recited in amended claim 31, a virtual director module using a probabilistic finite state machine and receiving as input audio and video tracking results is used to automatically select a current camera view from the multiple camera views. In contrast, the combination of Bianchi and He et al. does not disclose this virtual director module that performs these actions. Consequently, no motivation or suggestion for this claimed feature recited in amended claim 31 is provided. Absent this teaching, motivation or suggestion, the combination of Bianchi and He et al. cannot render the Applicants' claimed invention obvious (MPEP § 2143.01).

The combination fails to appreciate or recognize the advantages of the feature recited in amended claim 31 of a virtual director module using a probabilistic finite state machine and receiving as input audio and video tracking results from the audience-tracking camera and the lecturer-tracking camera and using the set of expert video production rules and probabilistic rules to automatically select a current camera view from the multiple camera views in a real-world environment such that the current camera view is a weighted random choice. More specifically, this enables the system to "produce a more aesthetically pleasing and professional video production without the expense of a human video production team (specification, paragraph [0016], lines 14-17). Neither Bianchi nor He et al. discuss or appreciate these advantages of this feature recited in Applicants' amended claim 31.

The Applicants, therefore, submit that obviousness cannot be established since the combination of Bianchi and He et al. fails to teach, disclose, suggest or provide any motivation for the material feature recited in Applicants' amended claim 31 of a virtual director module using a probabilistic finite state machine and receiving as input audio and video tracking results from the audience-tracking camera and the lecturer-tracking camera and using the set of expert video production rules and probabilistic rules to automatically

select a current camera view from the multiple camera views in a real-world environment such that the current camera view is a weighted random choice. In addition to explicitly lacking this feature, the combination of Bianchi and He et al. also fails to implicitly disclose, suggest, or provide explicit or implicit motivation for this feature. Further, the combination of Bianchi and He et al. fails to appreciate advantages of this claimed feature.

Therefore, as set forth in *In re Fine* and MPEP § 2142, the combination of Bianchi and He et al. does not render the Applicants' claimed invention obvious because the references are missing at least one material feature recited in the Applicants' amended claim 31. Consequently, because a prima facie case of obviousness cannot be established due to the lack of "some teaching, suggestion, or incentive supporting the combination", the rejection must be withdrawn. ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984); MPEP 2143.01.

Accordingly, the Applicants respectfully submit that amended independent claim 31 is patentable under 35 U.S.C. § 103(a) over Bianchi in view of He et al. based on the amendments to claim 31 and the legal and technical arguments set forth above and below. Moreover, claims 32-34 depend from amended independent claim 31, and are also nonobvious over Bianchi in view of He et al. (MPEP § 2143.03). The Applicants, therefore, respectfully request reexamination, reconsideration and withdrawal of the rejection of claims 31-34.

#### Amended Independent Claim 18

Amended independent claim 18 of the Applicants' claimed invention includes a method for automatically producing a video of a lecture for online publishing. The method includes providing a set of expert video production rules that are probabilistic rules used by human video professionals in a video production field, and weighting the expert video production rules such that a first rule of the expert video production rules has greater weight as compared to a second rule of the expert video production rules, so that if the first rule and the second rule conflict the first rule is used and the second rule is discarded

since the first rule has a greater weight than the second rule. The method also includes capturing the lecture in a real-world lecture environment using a camera system that includes multiple camera views. The camera system includes a lecturer-tracking camera. The method further includes tracking the lecturer based on a history of the lecturer's movement using a history-based, reduced-motion tracker, receiving as input audio and video tracking results and using the set of expert video production rules and a finite state machine to automatically determine a current camera view from the multiple camera views, when the current camera view should change, and to which of the multiple camera views the current camera view should change based on a probabilistic approach that uses a probabilistic transition matrix constricted by the expert video production rules such that a next current camera view is a weighted random choice.

As discussed above in regard to claims 1 and 31, the combination of Bianchi and He et al. does not disclose these two features recited in amended claim 18. Consequently, no motivation or suggestion for the claimed feature of the Applicants' invention is provided. Absent this teaching, motivation or suggestion, the combination of Bianchi and He et al. cannot render the Applicants' claimed invention obvious (MPEP § 2143.01). Moreover, as also discussed above, the combination fails to appreciate or recognize the advantages of the feature recited in amended claim 18.

The Applicants, therefore, submit that obviousness cannot be established since the combination of Bianchi and He et al. fails to teach, disclose, suggest or provide any motivation for material features recited in Applicants' amended claim 18. In addition to explicitly lacking these features, the combination of Bianchi and He et al. also fails to implicitly disclose, suggest, or provide explicit or implicit motivation for these features. Further, the combination of Bianchi and He et al. fails to appreciate advantages of these features.

Therefore, as set forth in *In re Fine* and MPEP § 2142, the combination of Bianchi and He et al. does not render the Applicants' claimed invention obvious because the references are missing at least two material features recited in the



Applicants' amended claim 18. Consequently, because a prima facie case of obviousness cannot be established due to the lack of "some teaching, suggestion, or incentive supporting the combination", the rejection must be withdrawn. ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984); MPEP 2143.01.

Accordingly, the Applicants respectfully submit that amended independent claim 18 is patentable under 35 U.S.C. § 103(a) over Bianchi in view of He et al. based on the amendments to claim 18 and the legal and technical arguments set forth above and below. Moreover, claims 19-23, 25-27, and 29 depend from amended independent claim 18, and are also nonobvious over Bianchi in view of He et al. (MPEP § 2143.03). The Applicants, therefore, respectfully request reexamination, reconsideration and withdrawal of the rejection of claims 18-23, 25-27, and 29.

#### Conclusion

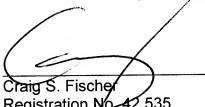
Because the Applicants' claimed invention includes features neither taught, disclosed nor suggested by the art cited in the Office Action, the Applicants respectfully submit that the rejections of claims 1-23 and 25-34 has been overcome.

The Applicants, therefore, submit that claims 1-10, 13-23, 25-27, 29, and 31-34 of the subject application are in condition for immediate allowance. The Examiner, therefore, is respectfully requested to withdraw the outstanding rejections of the claims and to pass all of the claims of this application to issue.

In an effort to expedite and further the prosecution of the subject application, the Applicants kindly invite the Examiner to telephone the Applicants' attorney at (805) 278-8855 if the Examiner has any comments, questions or concerns, wishes to discuss any aspect of the prosecution of this application, or desires any degree of clarification of this response.

Respectfully submitted,

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